

arid-country bird as the Crimson Chat to be able to time its breeding cycle to such favourable periods and to avoid its prolongation into less favourable or adverse conditions. A social nesting habit may under these conditions be of great value.

Birds observed on the seven acre area held territories surrounding their nests and the main purpose appeared to be to ensure an adequate food supply for the nestlings. Both sexes defended the territory by song and by aggressive bill eliciting displays. The male may have used his conspicuous colour as well.

After leaving their nests family parties flocked on common ground.

The influx of Crimson Chats coincided with one of the best "growing" seasons within the memory of local farmers. Although rains were much later than usual well-spaced falls and mild temperatures combined to create highly favourable conditions for the food supply required by the Chats.

OBSERVATIONS ON MARSUPIALS IN CAPTIVITY

By L. GLAUERT, Western Australian Museum, Perth.

Over a period of years several individuals of three species of native marsupials have been kept in captivity at the Museum, enabling observations to be made on them in respect to certain phases of their life history. The following is a summary of our experiences:—

AUSTRALIAN BANDICOOTS (Family Peramelidae):

Quenda (Isodon obesulus):

In some parts of Australia Quendas are accused of eating potatoes and root crops, an accusation which experiments made at the Museum showed to be groundless. Animals kept without food for a couple of days were offered potatoes, carrots and turnips which they refused to touch in spite of their hunger. But worms, insects, spiders and even scorpions and centipedes were seized at once and devoured with evident relish.

One little animal, which was a pet at the Museum for a number of years, reached us when it was about the size of a half-grown rat. At that time we knew nothing of the animal's habits, although its teeth suggested it was an insect eater and perhaps a flesh eater, too. We therefore gave it a certain ration of raw meat daily, to which were added such insects as we could obtain. We even tried live scorpions and centipedes and found that in every case the animal knew how to deal with its prey. With a rapid scrambling movement of the forefeet, which was rather like a strenuous patting, the animal used to crush its victim, then lifting it to its mouth, or bending down for the purpose, the coup-de-grace was administered. Centipedes were bitten behind the head, but scorpions were bitten on the tail, thus making the sting useless.

As an experiment I, on one occasion, offered the animal a mouse which had been caught in a trap at home. To my astonish-

ment the Quenda pounced on the little rodent, patted it in the manner I have described, then lifting the victim to its mouth, crushed the skull between its powerful teeth and began to devour it. I watched the animal for a few minutes and then went to fetch a friend to show him what was happening. Imagine our astonishment when we reached the cage, to find that there was no trace of the mouse, body, skin and fur all had disappeared.

Although usually nocturnal the Quenda will sometimes spend the whole day in some activity or other, not seeming to be distressed by the bright sunlight. The day, however, is usually spent in a well-built nest which is constructed with great pains and ingenuity. A Quenda, intent upon house-making, will level off the surrounding vegetation as though a seiche has been through it, the material obtained being piled into a rounded heap inside which the animal sleeps secure. The nest is made of grass and vegetation and may form a mound of considerable size. No permanent entrance is provided, for the animal will emerge at any point, and having done so will at once set about making its bed, shaping up the mound and closing the opening out of which it came. When it wishes to retire, it simply burrows into the heap at the nearest point, and when inside moves about to make itself comfortable, closing the entrance in the process.

The Quenda seems to have an instinct enabling it to sense approaching rain, for before a change in the weather it would add to the nest mound with feverish activity, one animal even vacating its nest and seeking refuge in a box placed in its enclosure.

Though gentle and quiet when handled, the Quenda is very pugnacious and it is rarely that two can be kept together. A pair which reached the Museum alive some years ago were placed in a large cage with plenty of straw and other material for nest making. They were well fed and although unable to deal with all the meat given them they spent the night in deadly combat, the victor having followed the established practice of endeavouring to eat the vanquished. In this case, however, he was unable to do so, probably because of the very ample meal that had been provided the evening before.

The females must be very wary and secretive when carrying out their parental duties, for we have never received at the Museum a female with young in the pouch.

POSSUMS (Family Phalangeridae):

Noolbenger or Honey Possum (*Tarsipes spenserae*):

Our experience with this species is mainly limited to a specimen which the Museum received from Mr. William Gibb, of Balgowie, on the King River, in 1926. Mr. Gibb forwarded two specimens, of which one unfortunately died a few days after arrival. The other survived for over two months. Although in the bush the animal is mainly nocturnal, the little captive being fed in the daytime, gradually changed its habits and was therefore easily observed. It was nimble and active, able to climb along the stem-

derest twig, safeguarding its position with the help of its long tail. It would often hang upside down, particularly when feeding on the flowers and was astonishingly quick in its movement. When sleeping the animal generally rested on its rump, hunched up, with the long snout bent down between the fore limbs with the tail brought forward over all and turned down the back as though wrapped round the little body.

This little Noolbenger, which became quite tame, was kept in a large cage in which was fixed the branch of a tree with a bird's nest to act as its sleeping quarters. For food it received a varied diet, bread soaked in water and plentifully covered with sugar was always available, a small tin of honey was placed in the cage occasionally, whilst every day fresh bush flowers, principally banksias, hakeas and dryandras, were given. The sugared bread and honey were readily eaten, and before long the little creature learned to come on to my hand to take sugar from my moistened finger tips. The method adopted was quite interesting, the Noolbenger would climb up a finger and remove the sugar with its tongue, then it would descend to the palm and climb up another finger, repeating the process until its hunger was satisfied. In no single instance did the animal move directly from finger to finger, although it could easily have done so. When a banksia cone was placed in the cage great excitement was noticed, the animal at once proceeding to investigate the flower spike, pushing its long tongue to the bases and licking the pollen off the stamens. Later in the season, when no more banksia was available, the large dryandra seemed to be a very satisfactory substitute. It was remarked at the time, that the Noolbenger took absolutely no interest in any of the wattles that were offered to it.

It was long believed that the Noolbenger was confined to the country around Albany, where the animal was first discovered, but the material sent in during the last few years to the Museum shows that at the present time, its range extends through the coastal country from the Irwin River in the north to the country around Esperance. It has also been found as far inland as the Stirling Range. It is not rare in the country around Perth, a number having reached the Museum from West Swan, Belmont, South Perth and Shenton Park. Perhaps the little animal can, with justice, be regarded as a permanent resident of King's Park.

Mundarda (Cercartetus concinnus):

Mundardas, or Pigmy Possums, have on several occasions reached the Museum alive, in spite of the fact that the senders, hoping to provide for the little animal on its journey, gave it nothing but grains of wheat or bread crusts to eat on the way. Now and again we have been able to keep the animal for some months, but the diet we found was much more varied than is generally supposed. Sugar, honey and jam were always eaten, but I gained the impression that these were rather to be regarded as delicacies, the principal food being insects of which any number might be

taken. Grasshoppers, blowflies and houseflies, put alive into the cage would be caught with remarkable dexterity and often nothing would be left except the wings, although in the case of the larger grasshoppers the legs and part of the skin would also be rejected probably because they were too hard. Certain moths, various kinds of insect grubs, and even spiders, are taken if offered; from which we might infer that small as the animal is, it is distinctly to be classed as a friend of the agriculturist.

A Mundarda was presented by Miss J. Brittain, of Scarborough, on March 27, 1939. At that time I thought that Miss Brittain was presenting merely a healthy well-nourished specimen, but a fortnight later when the animal was being examined we noticed a tiny brownish tail projecting from the pouch. A closer examination there revealed that the little mother had no less than six young in her pouch, the animals being about the size of a small pea. Four days later the young were considerably larger, three of them being outside the pouch probably because they could not squeeze in. They were still naked but the hair was beginning to grow on their bodies. On April 22, a week later, the body was completely covered with bluish-grey fur, the animals had grown considerably but the eyes were still closed. On April 24 one venturesome youngster, with eyes open had wandered from the nest and was exploring the cage. On April 29 all had their eyes open and were active. This necessitated more roomy quarters, so the mother and her family were transferred to a large case fitted with two branches and with a box, inside which the mother made a cosy nest of cotton wool and teased rope. During the day the family was generally asleep, but by five o'clock one or more were roaming about the cage. When night had fallen they became busy hunting the live insects provided, and exhibiting marvellous feats of agility, climbing about the branches after the grasshoppers, which they captured with great dexterity. On such occasions full use is made of the long slender tail, by which the animal will hang when reaching from one branch to another. Unfortunately the animals died during the following Christmas holidays as the result of an accident.

A JEWEL BEETLE OF THE FLOODED GUM

(*Mclobasis sexplagiata*)

By R. P. McMILLAN, "Glendearg," Bejoording

In practically every flooded gum (*Eucalyptus rudis*) examined, I have cut out from the bark a very beautiful little jewel beetle known as *Mclobasis sexplagiata* Laporte and Gory, 1837.

The following description may help to identify the beetle: Head golden, in some cases it may be a fiery copper. Thorax, coppery, the sides giving off golden-green reflections. Elytra, violet, with green and golden reflections. An elongate spot below the scutellum. A spot on each shoulder. Two narrow bands of fiery copper on each elytron, one situated a little above the middle, the other midway between it and the apex; neither of these bands touches the